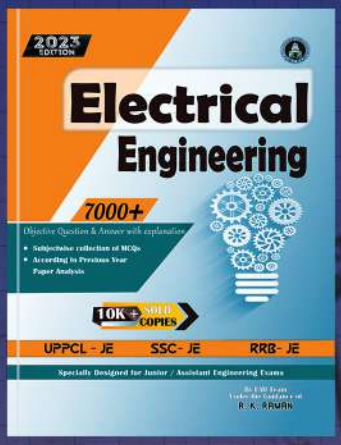
EAD Educational Group

ead online classes

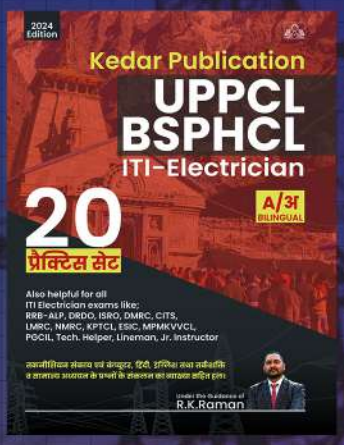
EAD ONLINE CLASSES

Objective Book for

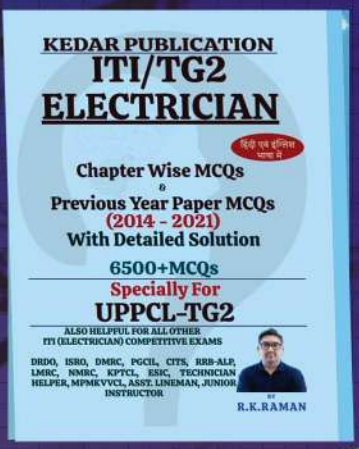
Electrical-JE



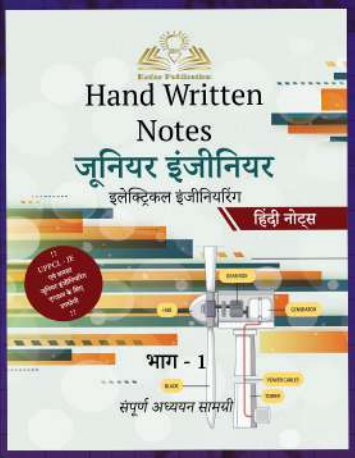
UPPCL BSPHCL



ITI-Electrician



JE Short Notes



Buy our Books at:-

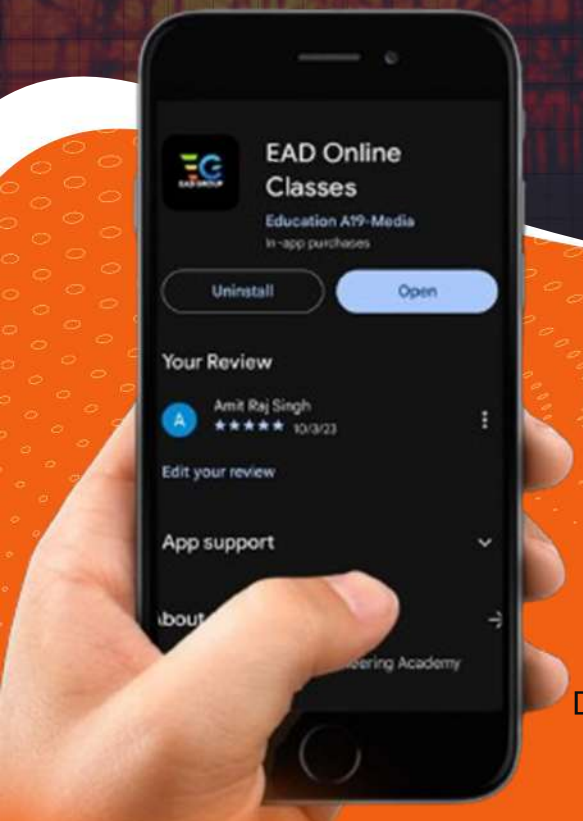
eadbooks.in

kedarpublication.com

Exam Targeted:-

UPPCL-JE, SSC-JE RRB-JE
PGCIL-DT,DFCCIL-JE, ITI Etc.

Raman sir
Electrical Engg. Expert



LOCATION

DEHRADUN CENTRE
EAD Educational Group, Pithuwalan kalan, Dehradun (UK)

PRAYAGRAJ CENTRE
EAD Educational Group, Horizon public school, Pandey Tower,Om gayatari nagar, Near shiv chowraha , Salori Prayagraj (UP)

Contact us:-
9389973136

Download EAD Online Classes application on playstore

Exam Date: **05-Jan-2021**
Exam Time: **16:00-18:00**
Post Name: **Vidhyut Sahayak - Junior Eng-Electrical**

GENERAL KNOWLEDGE - GENERAL KNOWLEDGE

Question No.1 Marks: 1.00
Bookmark

BSNL is an abbreviation of _____.
(A) ○ Broadcast Service Nigam Limited
(B) ○ Bharat Service Nigam Limited
(C) ○ Bharat Satellite Nigam Limited
(D) ○ **Bharat Sanchar Nigam Limited (Correct Answer)**

Question No.2 Marks: 1.00
Bookmark

As per 'India State of Forest Report 2019' which state ranked as first in terms of forest cover as percentage of total geographical area?
(A) ○ Punjab
(B) ○ Chhattisgarh
(C) ○ Madhya Pradesh
(D) ○ **Mizoram (Correct Answer)**

Question No.3 Marks: 1.00
Bookmark

Marble is an example of which type of rock?
(A) ○ **Metamorphic Rock (Correct Answer)**
(B) ○ Sedimentary Rock
(C) ○ Plutonic Rock
(D) ○ Volcanic Rock

Question No.4 Marks: 1.00
Bookmark

Which among the following is the Asia's largest Sports Institutes?
(A) ○ **Netaji Subhas National Institute of Sports, Patiala (Correct Answer)**
(B) ○ Institute of Sports Science & Technology, Pune
(C) ○ Inspire Institute of Sport, Vijayanagar
(D) ○ Lakshmibai National College of Physical Education, Thiruvananthapuram

Question No.5 Marks: 1.00
Bookmark

Which among the following ministries unveiled the Foreign Trade Policy 2015-20 in India?
(A) ○ Ministry of External Affairs
(B) ○ Ministry of Home Affairs
(C) ○ **Ministry of Commerce and Industry (Correct Answer)**
(D) ○ Ministry of Finance

Question No.6 Marks: 1.00
Bookmark

What is the full form of MBBS?
(A) ○ **Bachelor of Medicine, Bachelor of Surgery (Correct Answer)**
(B) ○ Bachelor of Medicine, Bachelor of Science
(C) ○ Bachelor of Medicine, Bachelor of Stemcells
(D) ○ Bachelor of Medicine, Bachelor of Social-Science

Question No.7 Marks: 1.00
Bookmark

Which among the following Indian states shares its border with Bhutan?
(A) ○ **West Bengal (Correct Answer)**
(B) ○ Tripura
(C) ○ Meghalaya
(D) ○ Nagaland

Question No.8 Marks: 1.00
Bookmark

Dharma Guardian is the joint military exercise between India and _____.
(A) ○ Pakistan
(B) ○ Kenya

(C) ○ **Japan (Correct Answer)**
(D) ○ Iran

Question No.9 Marks: 1.00
Bookmark

Who among the following officially opened the first Round Table Conference held in London on 12th November 1930?
(A) ○ Queen Elizabeth I
(B) ○ Queen Elizabeth II
(C) ○ Queen Victoria
(D) ○ **King George V (Correct Answer)**

Question No.10 Marks: 1.00
Bookmark

Manoj Mukund Naravane holds the position as the 28th Chief of the _____.
(A) ○ Navy Staff
(B) ○ Air Force Staff
(C) ○ **Army Staff (Correct Answer)**
(D) ○ Defence Staff

ENGLISH KNOWLEDGE - ENGLISH KNOWLEDGE

Question No.1 Marks: 1.00
Bookmark

Choose the best option from the given alternatives which can be substituted for the given word/sentence.

The Government wing responsible for making Rule
(A) ○ Harangue
(B) ○ Sacrilege
(C) ○ **Legislature (Correct Answer)**
(D) ○ Monarchy

Question No.2 Marks: 1.00
Bookmark

Find the word which is correctly spelt from the given options.
(A) ○ **Abbreviation (Correct Answer)**
(B) ○ Condolance
(C) ○ Unprecedanted
(D) ○ Suroundings

Question No.3 Marks: 1.00
Bookmark

Find the word which is correctly spelt from the given options.
(A) ○ Zeneth
(B) ○ **Swelling (Correct Answer)**
(C) ○ Undependeble
(D) ○ Congeniel

Question No.4 Marks: 1.00
Bookmark

Fill in the blanks with suitable Article from the given alternatives.

She had _____ no difficulty with his maths homework.
(A) ○ a
(B) ○ an
(C) ○ the
(D) ○ **No article (Correct Answer)**

Question No.5 Marks: 1.00
Bookmark

Rearrange the following to form a meaningful sentence and find the most logical order from the given options.

P: secured only through policies
Q: long-term prosperity for Australians and a
R: that foster environmental protection
S: future for its charismatic animals can be
(A) ○ **QSPR (Correct Answer)**
(B) ○ QSRP
(C) ○ PQRS
(D) ○ PQSR

Question No.6 Marks: 1.00

Bookmark

Choose the word which best expresses the similar **meaning** of the given word " ENUNCIATE "

(A) ○ Conceal
(B) ○ Callow
(C) ○ Dull
(D) ○ **Deliver (Correct Answer)**

Question No.7 Marks: 1.00

Bookmark

Replace the underlined phrase grammatically and conceptually with the help of the given options. If the given sentence is correct then select the option 'The given sentence is correct'.

Extreme adventures can be both exciting and dangerous **depends on the risk** involved

(A) ○ depending in the risk
(B) ○ **depending on the risk (Correct Answer)**
(C) ○ depend on a risk
(D) ○ The given sentence is correct

Question No.8 Marks: 1.00

Bookmark

Choose the word which expresses nearly the **opposite** meaning of the given word " BANISHED "

(A) ○ Discard
(B) ○ **Accept (Correct Answer)**
(C) ○ Evict
(D) ○ Exile

Question No.9 Marks: 1.00

Bookmark

In the following question, one part of the sentence may have an error. Find out which part of the sentence has an error and select the option corresponding to it. If the sentence contains no error, Select "No error" option. (Avoid punctuation errors)

(A) You, Boju and / (B) myself have / (C) completed our work / (D) NO ERROR

(A) ○ **B (Correct Answer)**
(B) ○ A
(C) ○ D
(D) ○ C

Question No.10 Marks: 1.00

Bookmark

Fill in the blanks with suitable Preposition from the given alternatives.

Rosy is very different _____ her brother.

(A) ○ **from (Correct Answer)**
(B) ○ by
(C) ○ since
(D) ○ among

ELECTRICAL ENGINEERING - ELECTRICAL ENGINEERING

Question No.1 Marks: 1.00

Bookmark

The minimum number of flip-flops required in order to build a MOD-12 counter is equal to _____.

(A) ○ 2
(B) ○ 5
(C) ○ 12
(D) ○ **4 (Correct Answer)**

Question No.2 Marks: 1.00

Bookmark

Maxwell inductance bridge is used for coils of Q value _____.

(A) ○ less than 1
(B) ○ **greater than 1 and less than 10 (Correct Answer)**
(C) ○ more than 100
(D) ○ None of the above

Question No.3 Marks: 1.00

Bookmark

Two alternators rated 200 MVA and 150 MVA are having inertia constants 5 MJ/MVA and 4 MJ/MVA respectively. If both the generators are operating in parallel within the same power plant, then the equivalent inertia constant for the two machines on a base of 100 MVA is _____.

(A) ○ 9 MJ/MVA
(B) ○ **16 MJ/MVA (Correct Answer)**

(C) ○ 12 MJ/MVA
(D) ○ 18 MJ/MVA

Question No.4 Marks: 1.00
Bookmark

The Partial differential equation by eliminating the arbitrary function f from $z = f(xy)$ is _____.

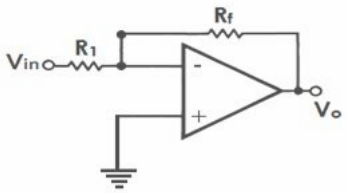
(A) ○ $\frac{p}{x} = \frac{q}{y}$
(B) ○ $pq = 0$
(C) ○ $pq = xy$
(D) ○ $px = qy$ **(Correct Answer)**

Question No.5 Marks: 1.00
Bookmark

The approximate transition width of main lobe of the frequency response of a Hanning window of length M-1 is _____.
(A) ○ **8π / M (Correct Answer)**
(B) ○ 6π / M
(C) ○ 4π / M
(D) ○ 2π / M

Question No.6 Marks: 1.00
Bookmark

In the inverting amplifier circuit shown in Fig., R_1 = 1 kΩ and R_f = 2 kΩ. Determine the output voltage 'V_o ' when the input voltage is V_{in} = 0.5 V.



(A) ○ V_o = 2V
(B) ○ V_o = -2V
(C) ○ V_o = 1V
(D) ○ **V_o = -1V (Correct Answer)**

Question No.7 Marks: 1.00
Bookmark

A 200 MVA, 11 kV synchronous generator has 0.2 p.u. synchronous reactance. The p.u. synchronous reactance on the base value of 100 MVA and 22 kV is _____.
(A) ○ 0.4 p.u.
(B) ○ **0.025 p.u. (Correct Answer)**
(C) ○ 0.1 p.u.
(D) ○ 1.6 p.u.

Question No.8 Marks: 1.00
Bookmark

The sequence components of the fault current are as follows: Ipositive = j 2 p.u., Inegative = - j 0.5 p.u. and Izero = - j 1.5 p.u. The type of fault in the system is _____.
(A) ○ Double line fault
(B) ○ Single line - to- ground fault
(C) ○ Three phase fault
(D) ○ **Double line to ground fault (Correct Answer)**

Question No.9 Marks: 1.00
Bookmark

The minimum number of 2-input NOR gates required to implement the Boolean function Y = AB+C is _____.
(A) ○ **3 (Correct Answer)**
(B) ○ 4
(C) ○ 2
(D) ○ 5

Question No.10 Marks: 1.00
Bookmark

A 3-phase inverter delivers power to a resistive load from a DC source 'V_S '. For star connected load of 'R' Ω per phase, the RMS value of load current (I_{or}) for 180 degree conduction mode is _____.

(A) ○ $I_{or} = \frac{1}{3\sqrt{2}}\left(\frac{V_s}{R}\right)$

(B) ○ $I_{or} = \frac{\sqrt{2}}{3}\left(\frac{V_s}{R}\right)$ **(Correct Answer)**

(C) ○ $I_{or} = \frac{1}{\sqrt{2}}\left(\frac{V_s}{R}\right)$

(D) ○ $I_{or} = \frac{1}{3}\left(\frac{V_s}{R}\right)$

Question No.11 Marks: 1.00

Bookmark

For the simplified Boolean expression Y = AB + BC + CA, the required inputs A, B and C to make the output Y = 1 are, respectively _____.

(A) ○ A = 0, B = 0 and C =1

(B) ○ A = 1, B = 0 and C =0

(C) ○ A = 0, B = 1 and C = 0

(D) ○ **A = 1, B = 1 and C =0 (Correct Answer)**

Question No.12 Marks: 1.00

Bookmark

The coefficient of x in the Maclaurin's series expansion of $e^{\sin x}$ is equal to _____.

(A) ○ 0

(B) ○ **1 (Correct Answer)**

(C) ○ 3

(D) ○ 2

Question No.13 Marks: 1.00

Bookmark

The zero-input response of a system given by the state-space equation.

$\begin{bmatrix} \dot{x}_1 \\ \dot{x}_2 \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 1 & 1 \end{bmatrix}\begin{bmatrix} x_1 \\ x_2 \end{bmatrix}$ and $\begin{bmatrix} x_1(0) \\ x_2(0) \end{bmatrix} = \begin{bmatrix} 1 \\ 0 \end{bmatrix}$ is

(A) ○ $\begin{bmatrix} t \\ te^t \end{bmatrix}$

(B) ○ $\begin{bmatrix} e^t \\ t \end{bmatrix}$

(C) ○ $\begin{bmatrix} e^t \\ t \end{bmatrix}$

(D) ○ $\begin{bmatrix} e^t \\ te^t \end{bmatrix}$ **(Correct Answer)**

Question No.14 Marks: 1.00

Bookmark

Three point charges of 'q' are placed in air at the vertices of an equilateral triangle of side 'd'. The magnitude of the force on one charge due to other charges is given by:

(A) ○ $F = \frac{\sqrt{2}}{3\pi\varepsilon_0}\sqrt{\frac{q}{d}}$

(B) ○ $F = \frac{\sqrt{3}}{4\pi\varepsilon_0}\left(\frac{q}{d}\right)^2$ **(Correct Answer)**

(C) ○ $F = \frac{\sqrt{3}}{\pi\varepsilon_0}\left(\frac{q}{d}\right)^3$

(D) ○

$$F = \frac{\sqrt{3}}{2\pi\varepsilon_0}\left(\frac{q}{d}\right)$$

Question No.15 Marks: 1.00

Bookmark

A 230 V DC shunt motor runs at 660 rpm when the armature current is 50 A. Calculate the speed if the torque is doubled. Assume, armature resistance R_a = 0.2 Ω.

(A) ○ 330 rpm

(B) ○ **630 rpm (Correct Answer)**

(C) ○ 1320 rpm

(D) ○ 690 rpm

Question No.16 Marks: 1.00

Bookmark

What is the characteristic time constant for a 6 mH inductor in series with a 3 Ω resistor?

(A) ○ 4 ms

(B) ○ 3 ms

(C) ○ 1 ms

(D) ○ **2 ms (Correct Answer)**

Question No.17 Marks: 1.00

Bookmark

Three identical coils each of resistance 'R' ohm and inductance 'L' mH are connected in star and the total power dissipated is 'P' kW. If the same coils are connected in delta, then the total power dissipated is given by _____.

(A) ○ 'P/2' kW

(B) ○ '2P' kW

(C) ○ ' P/3' kW

(D) ○ **'3P' kW (Correct Answer)**

Question No.18 Marks: 1.00

Bookmark

If f(z)=u(x,y)+iv(x,y) is analytic then the family of curves u(x,y)=a and v(x,y)=b are _____.

(A) ○ Concurrent

(B) ○ parallel

(C) ○ equal

(D) ○ **orthogonal (Correct Answer)**

Question No.19 Marks: 1.00

Bookmark

$L^{-1}\left(\frac{1}{s^2+1}\right) =$

(A) ○ $\cos t$

(B) ○ $\sqrt{t}$

(C) ○ 2

(D) ○ $\sin t$ **(Correct Answer)**

Question No.20 Marks: 1.00

Bookmark

An induction motor has a short circuit current equal to five times the full-load current and full load slip is 5%. If the motor is started by a direct-on-line starter, then the ratio of the starting torque ' T_{st} ' to the full load torque ' T_{fl} ' is given by _____.

(A) ○ $\frac{T_{st}}{T_{fl}} = 0.2$

(B) ○ $\frac{T_{st}}{T_{fl}} = 6$

(C) ○ $\frac{T_{st}}{T_{fl}} = 1.25$ **(Correct Answer)**

(D) ○ $\frac{T_{st}}{T_{fl}} = 0.42$

Question No.21 Marks: 1.00

Bookmark

For a type-A chopper, 'V_S ' is the source voltage, ' α ' is the duty cycle and 'R_L ' is the load resistance. The average output

voltage and current for this chopper are, respectively _____.

(A) ○ $\alpha V_S, \frac{\alpha V_S}{R_L}$ **(Correct Answer)**

(B) ○ $(1-\alpha)V_S, \frac{(1-\alpha)V_S}{R_L}$

(C) ○ $\frac{V_S}{(1-\alpha)}, \frac{V_S}{(1-\alpha)R_L}$

(D) ○ $\frac{V_S}{\alpha}, \frac{V_S}{\alpha R_L}$

Question No.22 Marks: 1.00

Bookmark

A 6-pole, 3-phase induction motor is connected to 50 Hz supply. If it is running at 970 rpm, find the slip.

(A) ○ **Slip, s = 3% (Correct Answer)**

(B) ○ Slip, s = 4%

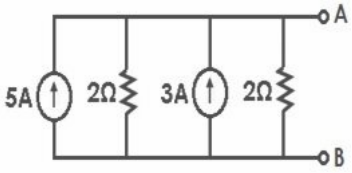
(C) ○ Slip, s = 5%

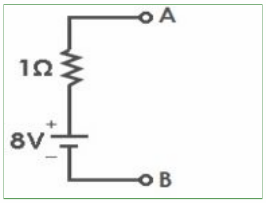
(D) ○ Slip, s = 2%

Question No.23 Marks: 1.00

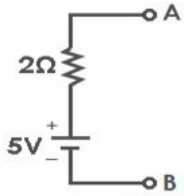
Bookmark

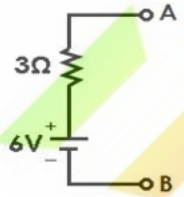
The equivalent circuit representation for the electrical circuit shown in Fig. is:

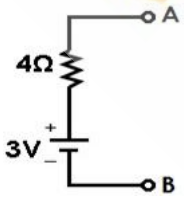


(A) ○ 

(Correct Answer)

(B) ○ 

(C) ○ 

(D) ○ 

Question No.24 Marks: 1.00

Bookmark

A converter which can operate in both 3-pulse and 6-pulse modes is a _____.

(A) ○ 3-phase half-wave converter

(B) ○ 3-phase full converter

(C) ○ **3-phase semi converter (Correct Answer)**

(D) ○ 1-phase full converter

Question No.25 Marks: 1.00

Bookmark

A resistance strain gauge of gauge factor 2 is used as a transducer element. Neglecting piezoresistive effects, what is the value of Poisson's ratio?

(A) ○ 3
(B) ○ 2
(C) ○ 1.6
(D) ○ **0.5 (Correct Answer)**

Question No.26 Marks: 1.00
Bookmark

The inverted V-curves of a synchronous motor give the relation between _____.
(A) ○ armature current and field current
(B) ○ **field current and power factor (Correct Answer)**
(C) ○ field current and speed
(D) ○ power factor and armature current

Question No.27 Marks: 1.00
Bookmark

If $u = x^y$, then $\frac{\partial^2 u}{\partial x \partial y} =$

(A) ○ $x^{y-1}(y\log x + 1)$ **(Correct Answer)**
(B) ○ $x^{y-1}(y\log x - 1)$
(C) ○ $x^{y}(y\log x - 1)$
(D) ○ $x^{y}(y\log x + 1)$

Question No.28 Marks: 1.00
Bookmark

Determine the constant ' c ' such that the vector
$\vec{F} = (x+ay)\hat{a}_x + (y+bz)\hat{a}_y + (x+cz)\hat{a}_z$ will be Solenoidal.

(A) ○ **c = -2 (Correct Answer)**
(B) ○ c = 2
(C) ○ c = -1
(D) ○ c = 1

Question No.29 Marks: 1.00
Bookmark

The per unit value of a 1 Ω resistor at 100 MVA and 10 kV base voltage is _____.
(A) ○ **1 p.u. (Correct Answer)**
(B) ○ 0.1 p.u.
(C) ○ 0.01 p.u.
(D) ○ 10 p.u.

Question No.30 Marks: 1.00
Bookmark

Which of the following is a voltage controlled device with unidirectional current capability?
(A) ○ TRIAC
(B) ○ SCR
(C) ○ **IGBT (Correct Answer)**
(D) ○ BJT

Question No.31 Marks: 1.00
Bookmark

The period 'To' of a function $\cos\left[\frac{\pi}{4}(t-1)\right]$ is _____.

(A) ○ $T_o = 8$ sec **(Correct Answer)**
(B) ○ $T_o = \frac{1}{8}$ sec
(C) ○

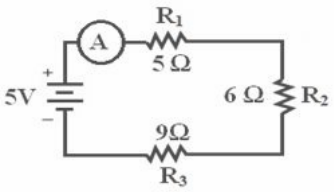
$T_o = 4$ sec

(D) ○ $T_o = 6$ sec

Question No.32 Marks: 1.00

Bookmark

For the circuit shown in Fig., the ammeter reading will indicate _____.



(A) ○ 4 A
(B) ○ **0.25 A (Correct Answer)**
(C) ○ 0.125 A
(D) ○ 0.55 A

Question No.33 Marks: 1.00

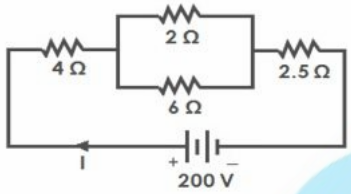
Bookmark

A moving coil galvanometer can be converted into a voltmeter by connecting a suitable _____.
(A) ○ low resistance in parallel with the galvanometer
(B) ○ high resistance in parallel with the galvanometer
(C) ○ low resistance in series with the galvanometer
(D) ○ **high resistance in series with the galvanometer (Correct Answer)**

Question No.34 Marks: 1.00

Bookmark

For the series-parallel circuit shown in Fig., the supply current 'I' is equal to _____.



(A) ○ 15 A
(B) ○ 5 A
(C) ○ 10 A
(D) ○ **25 A (Correct Answer)**

Question No.35 Marks: 1.00

Bookmark

A coil of 300 turns is wound uniformly on a ring of non-magnetic material. The ring has a mean circumference of 40 cm and a uniform cross-sectional area of 4 cm^2. If the current in the coil is 5A, the magnetic field strength is _____.
(A) ○ 2400 A/m
(B) ○ 1500 A/m
(C) ○ **3750 A/m (Correct Answer)**
(D) ○ 2250 A/m

Question No.36 Marks: 1.00

Bookmark

Find the value of k for which the following system of equations has no solution $kx + y + z = 1;\ \ x + ky + z = 1;\ \ x + y + kz = 1.$

(A) ○ 0
(B) ○ 1
(C) ○ **-2 (Correct Answer)**
(D) ○ -1

Question No.37 Marks: 1.00

Bookmark

A transformer has equivalent resistance referred to secondary R_{02} and reactance referred to secondary X_{02} . The regulation will be minimum when the phase angle is _____.

(A) ○ $\phi = \tan^{-1}\left(\sqrt{\frac{R_{02}}{X_{02}}}\right)$

(B) ○ $\phi = \tan^{-1}\left(\sqrt{\frac{X_{02}}{R_{02}}}\right)$

(C) ○ $\phi = \tan^{-1}\left(\frac{X_{02}}{R_{02}}\right)$

(D) ○ $\phi = \tan^{-1}\left(\frac{R_{02}}{X_{02}}\right)$ **(Correct Answer)**

Question No.38 Marks: 1.00

Bookmark

If 'k' is the duty cycle of single phase full wave AC voltage controller, then its input power factor is _____.

(A) ○ k

(B) ○ $\sqrt{k}$ **(Correct Answer)**

(C) ○ k^2

(D) ○ $\frac{1}{k}$

Question No.39 Marks: 1.00

Bookmark

The ratio of very high-frequency resistance to DC resistance of a round conductor of radius 'r' and material with width of penetration ' δ ' can be written as _____.

(A) ○ $\frac{R_{AC}}{R_{DC}} = \frac{r}{\delta}$

(B) ○ $\frac{R_{AC}}{R_{DC}} = \frac{r}{3\delta}$

(C) ○ $\frac{R_{AC}}{R_{DC}} = \frac{r}{4\delta}$

(D) ○ $\frac{R_{AC}}{R_{DC}} = \frac{r}{2\delta}$ **(Correct Answer)**

Question No.40 Marks: 1.00

Bookmark

If $F[f(x)] = F(s)$. Then $F[f(x+a)] = \cdots [F(f(x) = \frac{1}{\sqrt{2\pi}}\int_{-\infty}^{\infty} f(x)e^{isx}\,dx]$

(A) ○ $e^{-ias}F(\frac{s}{a})$

(B) ○ $e^{ias}F(s)$

(C) ○ $e^{-ias}F(s)$ **(Correct Answer)**

(D) ○ $e^{-ias}F(s+a)$

Question No.41 Marks: 1.00

Bookmark

A 4-pole, lap-wound DC machine generates a voltage of 230 V. Which of the following gives the magnitude of the generated voltage when the machine is wave-wound?

(A) ○ 115 V

(B) ○ 180 V

(C) ○ **460 V (Correct Answer)**

(D) ○ 230 V

Question No.42 Marks: 1.00

Bookmark

A circuit has the resonant frequency of 60 Hz and lower half-power frequency of 40 Hz. What is its bandwidth?

(A) ○ 100 Hz
(B) ○ **50 Hz (Correct Answer)**
(C) ○ **40 Hz (Correct Answer)**
(D) ○ 60 Hz

Question No.43 Marks: 1.00
Bookmark

The phase voltage of a 4-wire three-phase star-connected system is 110V. The line voltage (approximate value) is:

(A) ○ 330 V
(B) ○ **191 V (Correct Answer)**
(C) ○ 440 V
(D) ○ 110 V

Question No.44 Marks: 1.00
Bookmark

The magnetic field intensity at the centre of a circular coil of diameter 1 meter and carrying a current of 2 ampere is _____.

(A) ○ 8 ampere/meter
(B) ○ 3 ampere/meter
(C) ○ 4 ampere/meter
(D) ○ **2 ampere/meter (Correct Answer)**

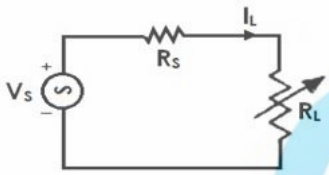
Question No.45 Marks: 1.00
Bookmark

If $f(x) = x^2$ defined in (-1, 1), then the constant term in the Fourier series expansion of $f(x)$ is _____.

(A) ○ 2/3
(B) ○ 1/3p
(C) ○ 1/2
(D) ○ 1/3

Question No.46 Marks: 1.00
Bookmark

Consider the purely resistive circuit as shown in Fig. where, V_S is the source voltage, R_S is the source resistance, R_L is the load resistance and I_L is the load current. The current at maximum power is equal to _____ of the maximum current.



(A) ○ 75%
(B) ○ 100%
(C) ○ **50% (Correct Answer)**
(D) ○ 25%

Question No.47 Marks: 1.00
Bookmark

The severity of line-to-ground and 3-phase faults at the terminals of an unloaded star connected synchronous generator is to be same. If the terminal voltage is 1 p.u. and $X_1 = X_2 = j0.35$ p.u., $X_{g0} = j0.05$ p.u., for the alternator, then the required inductive reactance for neutral grounding is _____.

(A) ○ $X_n = j\ 0.2$ p.u.
(B) ○ $X_n = j\ 0.015$ p.u
(C) ○ **$X_n = j\ 0.1$ p.u. (Correct Answer)**
(D) ○ $X_n = j\ 0.15$ p.u.

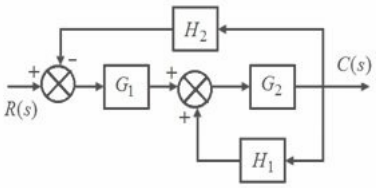
Question No.48 Marks: 1.00
Bookmark

Consider an analog signal x(t) = 5 sin(100πt). What is the Nyquist rate for this signal?

(A) ○ 125 Hz
(B) ○ 75 Hz
(C) ○ **100 Hz (Correct Answer)**
(D) ○ 50 Hz

Question No.49 Marks: 1.00
Bookmark

The transfer function C(s)/R(s) for the block diagram shown in Fig. is given by:



(A) ○ $\frac{C(s)}{R(s)}=\frac{(G_1+G_2)H_2}{1-G_2H_1+G_1G_2H_2}$

(B) ○ $\frac{C(s)}{R(s)}=\frac{G_1G_2H_1}{1+G_2H_1+G_1G_2H_2}$

(C) ○ $\frac{C(s)}{R(s)}=\frac{G_1G_2}{1-G_2H_1+G_1G_2H_2}$ **(Correct Answer)**

(D) ○ $\frac{C(s)}{R(s)}=\frac{G_1G_2}{1+G_2H_1-G_1G_2H_2}$

Question No.50 Marks: 1.00

Bookmark

The maximum possible mutual inductance between the coils have self inductance L_1 = 4 H and L_2 = 16 H is _____.

(A) ○ 12 H

(B) ○ **8 H (Correct Answer)**

(C) ○ 16 H

(D) ○ 20 H

Question No.51 Marks: 1.00

Bookmark

A 3-phase transformer has its primary connected in delta and secondary in star. Secondary to primary turn ratio per phase is 5. For a primary voltage of 400 V, the secondary voltage would be _____.

(A) ○ $2000\sqrt{3}$ V **(Correct Answer)**

(B) ○ 2000 V

(C) ○ $80\sqrt{3}$ V

(D) ○ 80 V

Question No.52 Marks: 1.00

Bookmark

The complementary function of $x^2\frac{d^2y}{dx^2}-x\frac{dy}{dx}+y=2xlogx$ is _____.

(A) ○ $(A+Bx)logx$

(B) ○ $(A+Blogx)e^x$

(C) ○ $(A+Blogx)x$ **(Correct Answer)**

(D) ○ $(A+Bx)e^x$

Question No.53 Marks: 1.00

Bookmark

A 4 pole, 50 Hz, 3-phase induction motor has a rotor resistance of 0.024 Ω per phase and standstill reactance of 0.6 Ω per phase. The speed at which the maximum torque developed is _____.

(A) ○ 1500 rpm

(B) ○ 980 rpm

(C) ○ **1440 rpm (Correct Answer)**

(D) ○ 1560 rpm

Question No.54 Marks: 1.00

Bookmark

The area between $y^2=4ax$ and $x^2=4ay$ is represented as _____.

(A) ○

$$\int_{-a}^{a}\int_{\frac{x^2}{4a}}^{2\sqrt{ax}} dydx$$

(B) ○ $$\int_{0}^{4a}\int_{0}^{2\sqrt{ax}} dydx$$

(C) ○ $$\int_{0}^{4a}\int_{\frac{x^2}{4a}}^{2\sqrt{ax}} xdydx$$

(D) ○ $$\int_{0}^{4a}\int_{\frac{x^2}{4a}}^{2\sqrt{ax}} dydx$$ **(Correct Answer)**

Question No.55 Marks: 1.00

Bookmark

A unity feedback control system has an open loop transfer function

$$G(s)=\frac{K}{s(s+2)(s+4)}.$$

The centroid of the asymptotes in root-locus will be _____.

(A) ○ -1

(B) ○ 2

(C) ○ Zero

(D) ○ **-2 (Correct Answer)**

Question No.56 Marks: 1.00

Bookmark

A system is described by the transfer function:

$$G(s)=\frac{1}{s^3+as^2+Ks+3}$$ is stable.

The constraints on 'a' and 'K' are _____.

(A) ○ a < 0 and aK < 3

(B) ○ a > 0 and aK < 3

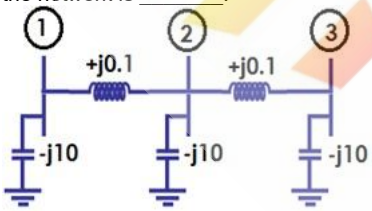
(C) ○ a < 0 and aK > 3

(D) ○ **a > 0 and aK > 3 (Correct Answer)**

Question No.57 Marks: 1.00

Bookmark

The network shown in Fig. has impedance in p.u. as indicated. The diagonal element Y_{22} of the bus admittance matrix Y_{bus} of the network is _____.



(A) ○ Y_{22} = + j19.90

(B) ○ Y_{22} = - j10.00

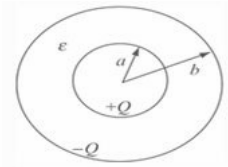
(C) ○ **Y_{22} = - j19.90 (Correct Answer)**

(D) ○ Y_{22} = + j10.00

Question No.58 Marks: 1.00

Bookmark

The capacitance of a spherical capacitor which consists of two concentric spherical shells of radii a and b (a < b) as shown in Fig. is given by:



(A) ○ $C = 2\pi\varepsilon\left(\frac{a+b}{b-a}\right)$

(B) ○ $C = 4\pi\varepsilon\left(\frac{ab}{b-a}\right)$ **(Correct Answer)**

(C) ○ $C = 4\pi\varepsilon\left(\frac{a+b}{ab}\right)$

(D) ○ $C = 2\pi\varepsilon\left(\frac{a+b}{a-b}\right)$

Question No.59 Marks: 1.00

Bookmark

A DC series generator delivers a load of 20 KW at 400 V. The armature and field resistances are 0.3 Ω and 0.2 Ω respectively. Find the generated emf. Allow a brush drop of 1V per brush.

(A) ○ 377 V

(B) ○ 420 V

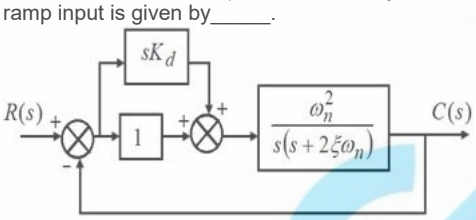
(C) ○ **427 V (Correct Answer)**

(D) ○ 400 V

Question No.60 Marks: 1.00

Bookmark

Consider the closed-loop second order system with PD controller as shown in Fig. For this case, the steady state error for unit ramp input is given by_____.



(A) ○ $e_{SS} = \frac{\xi}{\omega_n}$

(B) ○ $e_{SS} = \frac{2\xi}{\omega_n}$ **(Correct Answer)**

(C) ○ Zero

(D) ○ $e_{SS} = 2\xi\omega_n$

COMPUTER KNOWLEDGE - COMPUTER KNOWLEDGE

Question No.1 Marks: 1.00

Bookmark

Virtual memory is commonly implemented by _____.

(A) ○ precleaning

(B) ○ thrashing

(C) ○ loader paging

(D) ○ **demand paging (Correct Answer)**

Question No.2 Marks: 1.00

Bookmark

Identify the shortcut ket in MS Word that allows the users to switch between open documents in Microsoft Word.

(A) ○ Ctrl+F7

(B) ○ Ctrl+Shift+F7

(C) ○ **Ctrl+Shift+F6 (Correct Answer)**

(D) ○ Shift+F6

Question No.3 Marks: 1.00
Bookmark

Identify which is not a function of I/O management in OS?

(A) ○ It offers buffer caching system
(B) ○ It provides drivers for particular hardware devices.
(C) ○ It provides general device driver code
(D) ○ **Process creation and deletion. (Correct Answer)**

Question No.4 Marks: 1.00
Bookmark

The suspension of the parent process automatically occurs with a _____ system call. When the child process ends execution, the control moves back to the parent process.

(A) ○ exit()
(B) ○ exec()
(C) ○ **wait() (Correct Answer)**
(D) ○ kill()

Question No.5 Marks: 1.00
Bookmark

What will be the function key F11 will do in MS Excel?

(A) ○ It is used to open the help screen window.
(B) ○ **Its use is to create a chart in Excel. (Correct Answer)**
(C) ○ It is used to check the spelling of the selected text.
(D) ○ It allows you to edit the selected cell in the Excel sheet.

Question No.6 Marks: 1.00
Bookmark

_____ virus stays permanently in the primary memory (RAM) of computer. When we start the computer it becomes active and corrupts the files and programs running on the computer.

(A) ○ File Infector
(B) ○ Trojan Horse
(C) ○ Multipartite
(D) ○ **Resident (Correct Answer)**

Question No.7 Marks: 1.00
Bookmark

_____ is also known as personal computer.

(A) ○ Mainframe computer
(B) ○ **Microcomputer (Correct Answer)**
(C) ○ Workstation
(D) ○ Miniframe computer

Question No.8 Marks: 1.00
Bookmark

_____ is a security method in which information is encoded in such a way that only authorized user can read it.

(A) ○ Demultiplexing
(B) ○ **Encryption (Correct Answer)**
(C) ○ Surfing
(D) ○ Multiplexing

Question No.9 Marks: 1.00
Bookmark

Identify whether the following statements are True or False with respect to symptoms of a phishing email:

Statement A: Such emails contain grammatically incorrect text.
Statement B: Spoofing popular websites or companies.

(A) ○ Both Statement A & Statement B are False
(B) ○ Statement A is False and Statement B is True
(C) ○ **Both Statement A & Statement B are True (Correct Answer)**
(D) ○ Statement A is True and Statement B is False

Question No.10 Marks: 1.00
Bookmark

_____ is a specialized, high-speed network that provides block-level network access to storage.

(A) ○ EPN
(B) ○ VPN
(C) ○ **SAN (Correct Answer)**
(D) ○ PAN

GUJARATI LANGUAGE AND GRAMMAR - GUJARATI LANGUAGE AND GRAMMAR

Question No.1 Marks: 1.00
Bookmark

અહીં આપેલી એકસમાન અર્થની કઇ જોડી અયોગ્ય છે તે જણાવો.
(A) ○ ચૂવું- ટપકવું
(B) ○ **વાસ-સહવાસ (Correct Answer)**
(C) ○ સમાનાર્થી-પર્યાય
(D) ○ લાડલી-વહાલી

Question No.2 Marks: 1.00
Bookmark

નીચેના બે વાક્યોમાંથી સાચું અને યોગ્ય વાક્ય જણાવો. (1) શેઠ અને શેઠાણી બંને મજામાં છે. (2) શેઠ શેઠાણી બધા મજામાં છે.
(A) ○ 2 સાચું છે.
(B) ○ **1 સાચું છે. (Correct Answer)**
(C) ○ 1 અને 2 બંને સાચાં છે.
(D) ○ 1 અને 2 બંને ખોટાં છે.

Question No.3 Marks: 1.00
Bookmark

આપેલા શબ્દ-ઘટકો પૈકી કયું અયોગ્ય રીતે લખ્યું છે?
(A) ○ ભાઇબહેન
(B) ○ પ્રાતઃકાળ
(C) ○ રાતદિવસ
(D) ○ **ઘર જમાઇ (Correct Answer)**

Question No.4 Marks: 1.00
Bookmark

શબ્દકોશના ક્રમમાં ગોઠવીએ તો કયો શબ્દ પહેલો આવે?
(A) ○ લાલિમા
(B) ○ **જ્ઞાતિ (Correct Answer)**
(C) ○ ભયાનક
(D) ○ તણખલું

Question No.5 Marks: 1.00
Bookmark

નીચેનામાંથી 'સબરસ'નો સમાનાર્થી શબ્દ આપો.
(A) ○ સમરસ
(B) ○ મધુરસ
(C) ○ **લવણ (Correct Answer)**
(D) ○ સ્વાદિષ્ટ

Question No.6 Marks: 1.00
Bookmark

સરિતા પાણી રેડે છે.- કર્મણિ વાક્ય રચના જણાવો.
(A) ○ **સરિતાથી પાણી રેડાય છે. (Correct Answer)**
(B) ○ સરિતા પાણી રેડાવે છે.
(C) ○ સરિતાને પાણી રેડવું છે.
(D) ○ સરિતાથી પાણી રેડાયું.

Question No.7 Marks: 1.00
Bookmark

નાડ પકડવી' રૂઢિપ્રયોગનો અર્થ કહો.
(A) ○ મદદ કરવી
(B) ○ આરોગ્યની તપાસ કરવી
(C) ○ નાડી પકડવી
(D) ○ **ખરું કારણ જાણવું (Correct Answer)**

Question No.8 Marks: 1.00
Bookmark

આ વાક્યોમાંથી પ્રેરક વાક્ય જણાવો.
(A) ○ **વિરાટ ક્રિકેટ રમાડે છે. (Correct Answer)**
(B) ○ તે રોજ ખજૂર ખાય છે.
(C) ○ મહારાજ હસે છે.

(D) ○ કુમુદથી કવિતા ગવડાવાય છે.

Question No.9 Marks: 1.00

Bookmark

પડોશનું મકાન એક મા-દીકરી રહેતા હતા. આ વાક્યને સુધારીને સાચું વાક્ય લખો.

(A) ○ પડોશના મકાનમાં એક મા-દીકરી સાથે રહેતા હતા.

(B) ○ પડોશના મકાનમાં એક મા-દીકરી સાથે રહેતાં હતા.

(C) ○ પડોશનું મકાનમાં એક મા-દીકરી સાથે રહેતા હતા.

(D) ○ **પડોશના મકાનમાં મા-દીકરી સાથે રહેતાં હતાં. (Correct Answer)**

Question No.10 Marks: 1.00

Bookmark

આ વાક્યોના પ્રકાર જણાવો.
(1) તુ કનુને ચોપડી લેવડાવ.
(2) તેણે કનુ પાસે ચોપડી લેવડાવી.

(A) ○ વાક્ય 1 પ્રેરક અને વાક્ય 2 આજ્ઞાર્થ છે.

(B) ○ વાક્ય 1 અને વાક્ય 2 આજ્ઞાર્થ છે.

(C) ○ વાક્ય 1 અને વાક્ય 2 પ્રેરક છે.

(D) ○ **વાક્ય 1 આજ્ઞાર્થ અને વાક્ય 2 પુન:પ્રેરક છે (Correct Answer)**

Save & Print